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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,226	12/20/2001	Ranjani V. Parthasarathy	57313US002	9039
32692	7590	01/07/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			HANDY, DWAYNE K	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			1743	11
DATE MAILED: 01/07/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,226

Applicant(s)

PARTHASARATHY ET AL.

Examiner

Dwayne K Handy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 and 62-77 is/are pending in the application.
- 4a) Of the above claim(s) 1-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 50-77 is/are rejected.
- 7) ☒ Claim(s) 68-77 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the Restriction requirement in Paper No. 10 is acknowledged. The traversal is on the ground(s) that examining the claims of Group I, would not place an undue burden on the Examiner. This is not found persuasive because the issue is not the burden on the Examiner, but whether or not the apparatus as claimed can be used to practice another and materially different process. As stated in the previous action, the apparatus as claimed can be used for performing chemical reactions in array form.

The requirement is still deemed proper and is therefore made FINAL. Claims 1-49 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group or invention, there being no allowable generic or linking claim.

Claim Objections

2. Claims 68-77 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In claims 68-77, applicant is placing a limitation on the material to be tested in the device – the biological sample mixture - not the device itself. This would also be an intended use of the device and is given no patentable weight during examination.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 50-53 and 68-77 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 53 and 56-58 of copending Application No. 10/417,609 in view of Dusterhoft et al. (6,451,260).

Claims 50-53 and 68-77 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 39-42 of copending Application No. 10/027,222 in view of Dusterhoft et al. (6,451,260).

These rejections are provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented. **These rejections were previously made in the previous office action, paper no. 9. Applicant has stated that an appropriate response will be provided upon the determination of otherwise allowable subject matter.**

Inventorship

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 50-52, 64, 65 and 68-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (6,344,326) in view of Dusterhoft et al. (6,451,260). This rejection was originally applied to claims 50-53. The Examiner has removed the rejection of claim 52 (see the new rejection involving Mian below), but the original rejection remains. This rejection is also applicable to new claims 64, 65 and 68-77.

8. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Dusterhoft as applied above, and further in view of Mian et al. (6,319,469). Nelson and Dusterhoft teach every element of claim 53 except for the array arranged radially on the device. Mian teaches a microfluidic device with a plurality of arrays arranged radially on the platform. The arrays are arranged radially in order to take advantage of centripetal force to motivate fluid movement through the channels of the array (Abstract, Figure 1C, column 3 lines 36-57 and columns 9-11). It would have been obvious to one of ordinary skill in the art to combine the radial arrays of Mian with the teachings of Gjerde. The use of Mian's arrays would allow for the use of centripetal force to drive fluids through the separation media.

9. Claims 54, 55, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Dusterhoft as applied above, and further in view of Chisolm et al. (4,399,009). This rejection was originally applied to claims 54 and 55. This rejection is also applicable to new claims 66 and 67.

10. Claims 62 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Dusterhoft as applied above, and further in view of Kellogg et al. (6,632,399). Nelson and Dusterhoft teach every element of claim 53 except for the particle size specified in these claims. Kellogg teaches a microfluidic device for use in biological fluid assays. In column 40, line 10-47, Kellogg teaches the use of an affinity matrix having 60 micron beads for use in blood component separation. It would have been obvious to one of ordinary skill in the art to combine the particle size of 60 um from Kellogg with the combined teachings of Nelson and Dusterhoft. Kellogg teaches the use of this size in reference to separating blood components. The use of 60 micron particles, then, would be advantageous in a system which analyzes biological samples.

Response to Arguments

11. Applicant's arguments filed 10/3/2003 have been fully considered but they are not persuasive. In traversing the rejections from the previous action, applicant has made the following arguments: (1) Nelson does not teach a plurality of arrays; (2) No motivation to combine Nelson and Dusterhoft; and (3) Chisolm does not cure the deficiencies of the combination of Nelson and Dusterhoft. The Examiner disagrees on all counts.

1) In Figures 17-19, Nelson shows an embodiment of the device with a plurality of arrays. These embodiments are described in column 18 and show affinity zones

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arranged in parallel arrays. Each array has a plurality of process chambers connected by a distribution channel.

2) Nelson already teaches solid phase enrichment, but does not teach polymers with hydrophobic and hydrophilic portions. This limits the number of compounds which may be separated in the channels. Both references teach separation by solid phase media. The addition of Dusterhoft merely allows for enhanced separation and a greater number of compounds which may be trapped in the media.

3) The combination of Nelson and Dusterhoft does not provide an adhesive teaching. This is clearly stated in Chisolm. Also, Chisolm uses the same type of separation media (a membrane that is both hydrophilic and hydrophobic) as Dusterhoft and the purpose of the separation media in Chisolm is to trap compounds in the membrane. This would be solving a similar problem in the art – the use of separation media to trap compounds.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Anderson et al. (6,197,595) and Sheppard, Jr. et al. (6,143,247) show microfluidic devices which may also be used in nucleic acid separation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwayne K Handy whose telephone number is (703)-305-0211. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703)-308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0661.

Dkh
December 29, 2003

A handwritten signature in cursive script, reading "Arlen Soderquist".

ARLEN SODERQUIST
PRIMARY EXAMINER